DOCUMENT RESUME

ED 087 705 SP 007 656

TITLE	Catalog of Educational RDD&E Instructional Materials.
INSTITUTION	Far West Lab. for Educational Research and Development, San Francisco, Calif.
PUB DATE	Feb 73
NOTE	36p.
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	*Catalogs; Curriculum Development; *Educational Researchers; Instructional Materials; *Program Descriptions; Resource Materials; Teaching Models; Training Techniques

ABSTRACT

This prototype instructional materials catalog is a source of information about curriculum and program developments, materials, instructional and training models, and other resources for use in educational research, development, diffusion, and evaluation (RDD&E) training. Section I describes products which, for the most part, have been developed with support from the National Institute of Education's Task Force on Researcher Training. Some of these products are now or soon will be available for general use in degree and nondegree training programs. Others are still in development but may be made available for field testing or reviewed for information purposes. The more than 30 other products in the catalog are grouped into four sections: Training Products for Other Education Professionals, Training Models and Techniques, Training Materials, and Supplementary Materials. The title and the developer or source of each product and a brief abstract are provided for the products in these sections. (Author)

ED 087705

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CATALOG OF EDUCATIONAL RDD&E INSTRUCTIONAL MATERIALS

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JAN 21 1974

FEBRUARY, 1973

Published by
Far West Laboratory for Educational Research and Development
1855 Folsom Street
San Francisco, California 94103

FOR LIMITED DISTRIBUTION

SP 007 650

PREFACE

This prototype Instructional Materials Catalog is a source of information about curriculum and program developments, materials, instructional and training models, and other resources for use in educational research, development, diffusion, and evaluation (RDD&E) training.

Section I describes products which, for the most part, have been developed with support from the National Institute of Education's Task Force on Researcher Training. Some of these products are now or soon will be available for general use in degree and non-degree training programs. Others are still in development, but may be made available for field testing or reviewed for information purposes. The content for each of the product descriptions was either submitted by the developer or extracted from reporting forms which the developer prepared for NIE.

The more than 30 other products in the Catalog are grouped into four sections: Training Products for Other Education Professionals, Training Models and Techniques, Training Materials, and Supplementary Materials. The title and the developer or source of each product and a brief abstract are provided for the products in these sections.

The reader should note that this Catalog does not, by any means, include all relevant and available products. It represents a first attempt to compile, classify, organize, and annotate a small collection of educational RDD&E training materials acquired thus far for an experimental project on RDD&E Information System Design being conducted by the Far West Laboratory. The Catalog will be updated and expanded, if the need for this kind of information is sufficiently evidenced.

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I. TRAINING PRODUCTS FOR RESEARCH, DEVELOPMENT, DIFFUSION, AND EVALUATION PERSONNEL

APPRAISING EDUCATIONAL RESEARCH: A CASE STUDY APPROACH

This workbook is intended for use in improving the ability of learners to appraise critically educational research. The print materials consist of the following: an introductory statement about the nature of criticism, a statement about the contents of the materials and suggestions for use, and nine case studies. The problem areas in the nine cases cover: grading and student attitudes, evaluation of a Head Start program, prediction of long-term success, reinforcement and behavioral modification, effect of questioning procedures on student achievement, development of a concept of justice, factors affecting the validity of creativity assessments, experimentation with live animals in elementary school, and small group composition and productivity. The types of research in the cases include: status, prediction, experimental, case study, and philosophical analysis. Students read each article and special notes and then respond to orienting questions either verbally (if in a class situation) or in writing. They compare their responses to model appraisals. Comprehension of the articles requires neither statistical sophistication nor expertise in the substantive field.

Target Audience:	Research and research-related personnel, including students in research methods courses.
Suggested Use:	In conjunction with a research methods course or separately.
Materials and Equipment Needed:	Workbook
Instructional Requirements:	None specified
Availability:	Spring 1973
Costs:	Approximately $5 per workbook.
Developer:	Jason Millman and D. Bob Gowin, Department of Education, Stone Hall, Cornell University, Ithaca, New York 14850
Distributor:	Prentice-Hall, Inc., Englewood Cliffs, New Jersey

Research/
Urban Education

URBAN EDUCATIONAL RESEARCHERS TRAINING INSTITUTE

The Institute provides an instructional model for use by school systems, community agencies, college and universities interested in training research and evaluation personnel involved in urban school settings. Two six-credit courses were designed for the institute, sponsored by Howard University. They cover research proposal writing, statement of the problem, use of theory in the development of hypothesis, review of literature, research design-population selection, instrumentation, data collection and analyses, and report writing. Each course was a semester in length. Readings came from various research books supplied to the trainees. The trainees spent two weeks in classes developing a research proposal related to a problem in their home school systems. They are receiving monthly on-the-job supervision in carrying out their proposal, followed by two on-campus weekends for progress reporting and individual instruction. At the end of the project, they will spend two weeks on campus analyzing the data from their research project, writing up the findings, and receiving further training in research evaluation.

Target Audience:	Research and evaluation personnel in urban educational settings.
Suggested Use:	As an instructional model for use by school systems, higher educational institutions, and staffs of R&D centers.
Materials and Equipment Needed:	10 modules
Instructional Requirements:	Not specified
Availability:	October 1973
Costs:	Not specified
Developer:	Harriette and John McAdoo, School of Social Work, Howard University, Washington, D. C. 20001 (202) 636-7300
Distributor:	Not specified

AN INTERVIEWING TRAINING MODULE

This instructional package is designed for general use in training individuals or groups in the basic techniques of conducting survey research interviews. It can also be used to acquaint students with the interview as a data collection device--e.g., in a research methods course--without unnecessarily concentrating on the practice of specific skills. The module package consists of the following components: three stop-action films; a set of structured role-playing activities to be used during the breaks in the films; two copies of professionally developed interview schedules which students administer outside of the training sessions; a set of question-by-question specifications for the schedules to assist in their usage; and a student manual which explains the basic skills involved in conducting an interview. Each component is designed to supplement the others, providing students with the skills they need, an opportunity to practice these skills in a relatively controlled setting, and an opportunity to practice them "in the field." Student evaluation materials are supplied with an instructor's manual. The entire package is nearly self-instructional, requiring little preparation on the part of the instructor. Although the module is designed to be used in three, one-hour training sessions, plus out-of-class assignments, this format may be altered at the instructor's option.

Target Audience:	Persons in college or university, educational or public health agency, or private corporation who need training in interviewing techniques.
Suggested Use:	General, requires three classroom hours.
Materials and Equipment Needed:	Three 16mm stop-action color films, 16mm film projector, simulation booklets, two interview schedules and specifications, Survey Research Interviewing Manual for the student, and procedural guide for instructor.
Instructional Requirements:	Instructor helpful, but not required.
Availability:	1973
Costs:	Unknown
Developer:	Emil J. Haller, Associate Professor, Department of Education, 103 Stone Hall, Cornell University, Ithaca, New York 14850 (607) 256-2267
Distributor:	None at present.

PLANNING A TEST--A FILMSTRIP UNIT ON BASIC MEASUREMENT PRINCIPLES

A filmstrip with associated audio track has been developed to cover the major planning steps in the development of a measurement instrument such as a test or questionnaire. The filmstrip addresses the following six questions: why am I testing, what should I test, whom am I testing, what kinds of questions should I use, how long should my test be, and how difficult should my test be? A set of supplementary materials cover the following issues: learning how to develop tests, obtaining information about tests, preparing a test plan, kinds of test questions--advantages and disadvantages, reliability, and criterion-referenced tests. The supplementary materials provide an expanded treatment of some of the issues raised in the filmstrip, but their primary function is as a guide to appropriate literature for those individuals seeking an intensive treatment of topics related to their particular interest and needs. No student testing or evaluation materials are included in the package. No previous training in measurement is assumed.

Target Audience:	Persons engaged in or receiving training in evaluation, such as students in introductory educational psychology, measurement, or research training, or teachers, administrators, or other educational personnel.
Suggested Use:	In graduate or undergraduate level courses or for inservice training courses or workshops.
Materials and Equipment Needed:	Filmstrip and audiotrack, filmstrip projector, printed supplementary materials (24pp).
Instructional Requirements:	Not specified
Availability:	1973
Costs:	Not specified
Developer:	John J. Fremer, Jr., Educational Testing Service, Princeton, New Jersey 08540 (609) 921-9000
Distributor:	Educational Testing Service, Princeton, New Jersey 08540

FEHR-PRACTICUM

FEHR (which stands for "formative evaluation and heuristic research") -PRACTICUM is a computerized game which simulates the experience of a research and evaluation assistantship or practicum. The game provides practice in: selecting appropriate criterion measures; identifying relevant independent variables from a wider variety of available variables (e.g., ethnic groups, school, SES level, intelligence, age, curriculum content, etc.); designing a study to provide valid answers to an educational question; choosing research subjects via a sampling technique appropriate to the design; analyzing and interpreting data; and assessing the adequacy of an educational decision derived from an "experiment." The game is usually played by two or more teams, each consisting of three of four members. Each team "solves" a research/evaluation problem. The teams must collect information about past research in the area and about the behavior of the research subjects (students and teachers). The records of previous research are housed in an Information Bank, a kind of simulated library, and both the research environment and the behavior of the research subjects are simulated by a computer program.

Target Audience:	Students in research and evaluation.
Suggested Use:	Self-instructional simulation for a course of 3-5 semester hours (requires three to four three-hour sessions). Instructor must supply statistical training needed.
Materials and Equipment Needed:	Computer-based
Instructional Requirements:	Self-instructional
Availability:	Not specified
Costs:	Undetermined
Developer:	LeVerne S. Collet, University of Michigan, 4215A School of Education, Ann Arbor, Michigan 48104 (313) 764-8435
Distributor:	Not specified

TRAINING IN A STRATEGY FOR DEVELOPING EDUCATIONAL PRODUCTS AND PROCEDURES

The program is designed to train educators in the use of a strategy, the IDEALS concept, specifically developed for design or development work. The IDEALS (Ideal Design of Effective and Logical Systems) concept has four parts: (a) a prescriptive, universal framework or system for specifying any solution in terms of eight elements in five dimensions; (b) a design strategy of ten steps, dealing with functions and ideal system targets; (c) a focus on functions and targets to unite organizational personnel in a positive participatory framework for continuing system design and improvement program; and (d) use of models only when helpful and appropriate. The sequence of activities begins with a three-week training course on the IDEALS concept design strategy and related concepts, followed by two months of application of the strategy to projects in the participants' organizations, a two-day review and question answering workshop for solving problems which developed during the application period, and a final three-day report and wrap-up workshop for evaluation.

Target Audience:	Educational professionals in critical decision-making positions at various organizational levels.
Suggested Use:	Over a six-month period, beginning with three-week training course and interspersed with application experience and two workshops.
Materials and Equipment Needed:	Basic textbook, Work Design: A Systems Concept, plus transparencies, slides, overhead projector.
Instructional Requirements:	Instructor, with background in system design, needed for three-week course.
Availability:	Textbook to be published in September 1973. Other specifics for training still in field testing.
Costs:	Not yet available
Developer:	Gerald Nadler, Department of Industrial Engineering, University of Wisconsin, Madison, Wisconsin 53706
Distributor:	Not selected

A TRAINING PROGRAM IN EDUCATIONAL DEVELOPMENT, DISSEMINATION, AND EVALUATION

This comprehensive, transportable program is designed to train personnel in educational development, dissemination, and evaluation (DD&E) skills. The content of the program covers nine competence areas: planning and design, information/data collection and organization, communication skills, developmental engineering, evaluation, analysis and definition, dissemination and marketing, management, and dissemination of educational information. Training materials for each area are labelled a "series." Each series consists of from four to seven "modules" or self-instructional units focusing on sets of related skills. Competence assessment batteries, consisting of instruments such as trainee and supervisor ratings, job knowledge tests, simulation exercises, and product rating scales, are provided for each of the competence areas. The program features an instructional pattern called a triad, which consists of the student, an Instructional Resource Manager (IRM), and a work supervisor. The student works with the instructional modules, performs activities and exercises, and, at the same time, applies skills in an actual work situation. The IRM functions as a guide and resource person, assigning modules and reviewing student progress on a work plan and on achievement of assigned modules. The work supervisor oversees the student's job activities, provides on-the-job instruction as needed, and provides feedback and evaluation to the IRM.

Target Audience:	Personnel planning to enter or already in DD&E positions.
Suggested Use:	Three levels: (1) a comprehensive, degree-oriented program coordinated at a college or university; (2) use of series or clusters of modules as required by the learner; or (3) use of individual modules as required.
Materials and Equipment Needed:	About 30 printed modules, competence assessment instruments for each module, catalogs of instructional resources and assessment materials, and guides for quality control and implementation of program.
Instructional Requirements:	For a comprehensive use, instructional, college administrative staff, and R&D agency staff support needed. Modules are self-administered, requiring only supportive instructional staff.
Availability:	For field test use only, Fall 1973.
Costs:	None at present.
Developer:	The Far West Consortium, Far West Laboratory for Educational Research and Development, 1855 Folsom Street, San Francisco, California 94103
Distributor:	Bela Banathy, Far West Laboratory (415) 565-3197

A TECHNOLOGY FOR DEVELOPING INSTRUCTIONAL MATERIALS

This self-instructional program provides training for developers of instructional materials. Trainees engage in active practice of all the major tasks in the instructional development process, including: task analysis, stating objectives, developing tests, planning simulations, formulating strategies, developing materials, trying them out, and revising them. A Handbook is available to serve as an aid during learning, as a job aid immediately after program completion, and as a reference source as the developer gains experience. Active practice of small development steps is provided in an accompanying workbook. Active practice of large tasks (combining the small steps) is provided in a final exercise volume. Final student evaluation exercises are included in the materials.

Target Audience:	Beginning and intermediate audiences; portions for advanced audiences.
Suggested Use:	30-50 hours of self-paced instruction for use in academic, industrial, or military settings.
Materials and Equipment Needed:	Printed materials include Handbook, with 11 subvolumes, Workbook, Final Exercise, User's Manual, and Orientation. No equipment required.
Instructional Requirements:	None
Availability:	Currently in trial and revision stages. Scheduled for publication within a year.
Costs:	Not specified
Developer:	George L. Gropper, American Institutes for Research, 710 Chatham Center, Pittsburgh, Pennsylvainia 15219 (412) 281-1100
Distributor:	Not specified

THE EDUCATIONAL INFORMATION COUNSULTANT: SKILLS IN DISSEMINATING EDUCATIONAL INFORMATION

The EIC package provides skill development training for a role in education of a "middleman" who knows how to find and make accessible educational information where it is needed. The program is based on a model which delineates five major processes for this role. Participants learn to: analyze and define an educator client's information problem; plan and execute an information search; screen, sort, and package the information; communicate it to the client; and evaluate how effective the service has been. The training is skills-oriented and learner-centered. The exercises feature group and individual activities, including role playing, problem solving, simulation, and decision making. Student self-evaluation exercises and skill evaluation criteria and devices are included in the package. The training is available in three forms: Course, Institute, and Learning Team.

Target Audience: Educational information dissemination personnel at school, district, county, regional, or state levels, e.g., information specialists, librarians, curriculum or subject matter specialists, instructional materials center personnel, graduate students.

Suggested Use: For preservice or inservice training as a 45-hour graduate course, as a 10-day workshop, or as an independent study program for a team of three.

Materials and Equipment Needed: Training Manual (one per student) and an Instructor's package, with Instructor's Guide, model information packet, communication game, two filmstrips, and two cassette audiotapes. Filmstrip projector and cassette tape recorder. Access to an ERIC collection and to a library or information center.

Instructional Requirements: Course and Institute can be directed by any university instructor; a background in information utilization is helpful, but not required. Learning Team is self-administered.

Availability: Course and Institute as of April 1, 1973; field test version of Learning Team as of March 15, 1973.

Costs: Training Manual, about $10; Instructor's package about $60.

Developer: Bela Banathy, Far West Laboratory for Educational Research and Development, 1855 Folsom Street, San Francisco, California 94103 (415) 565-3197

Distributor: For Course and Institute, Bela Banathy. For Learning Team, Dept. B, University Extension, University of California, Berkeley, California 94720

TRAINING FOR LEADERSHIP IN LOCAL EDUCATIONAL IMPROVEMENT PROGRAMS

The program trains personnel for a specialty in designing, conducting, evaluating, and diffusing a local change program. Ten modules cover the following aspects: problem-solving model for designing and conducting local improvement programs, working relationships in leadership for change, change theory and strategies, educational reform themes and related innovations, implementing innovative programs, and diffusing innovations within school systems. A module can be studied independently of the rest of the program; some modules are prerequisites to others. Each module contains an explicit statement of training objectives, a study guide, exercises based on simulated or real situations, and an achievement posttest. Although the modules are self-instructional, it is recommended that an instructor be available to assist trainees with problems encountered and to assess accomplishment of objectives. Directions for assessing products of trainee practicum exercises are also included. Access to an educational library, ERIC, and other reference sources is important. In addition, access to educational R&D agencies and school systems is necessary for practicum experiences.

Target Audience:	School district administrators and specialists and field consultants in state education departments, educational labs and centers, schools of education, or private agencies.
Suggested Use:	Self-instructional modules for use in inservice or preservice training programs. Each module requires from 6-15 hours to complete.
Materials and Equipment Needed:	Ten self-contained modules, plus some required and optional readings. Audiotapes and tape recorder.
Instructional Requirements:	Instructor should be available for consultation and student assessment.
Availability:	From developer after July 1973 and from publisher by January 1974.
Costs:	Estimated $10 or less per module.
Developer:	Glen Heathers, Director of Staff Development, ACP, Research for Better Schools, 1700 Market Street, Philadelphia, Pennsylvania 19103 (215) 561-4100, Ext. 232
Distributor:	Publisher not yet selected.

Context Evaluation

A SEMINAR AND TRAINING PROGRAM IN NEEDS ASSESSMENT AND GOAL DEVELOPMENT

Two sets of complementary materials are provided for training on needs assessment and goal development in local school districts. The first is a Training Program for school-community groups on setting goals for their school, based on comprehensive needs assessment. It consists of eight modules, accompanied by materials for a trainer. The trainer is allowed some flexibility in arranging the materials for adaptation to the local situation. The second set of materials takes the form of a university-level seminar for training professional-level developers and evaluators in similar skills on a more sophisticated level. These materials also have a modular format. Both sets make extensive use of simulations, tape/slide presentations, and self-instructional exercises. Self-evaluation exercises on the content of each module are provided.

Target Audience:	Local school staff, parents, and community residents (Training Program). Educational administrators, program developers, and evaluators (Seminar).
Suggested Use:	16-20 hours for each program.
Materials and Equipment Needed:	Modules, cassette tape, cassette tape recorder, overhead projector, screen.
Instructional Requirements:	One trainer per 12-14 participants.
Availability:	Fall 1973
Costs:	To be determined
Developer:	Dr. James M. Morgan, Cincinnati Public Schools, 230 East Ninth Street, Cincinnati, Ohio 45202 (513) 621-7010, Ext. 293
Distributor:	None yet selected

II. TRAINING PRODUCTS FOR OTHER EDUCATION PROFESSIONALS

THE FORD TRAINING AND PLACEMENT PROGRAM

The Ford Training and Placement Program is a cooperative effort between the University of Chicago and the Chicago Public Schools to develop and test a social systems model of training teachers and others for urban schools. The basic training unit, a cadre, is composed of preservice interns, experienced teachers, administrators, psychologists, community representatives, etc. They train together during the internship year. Interns are committed to full-time employment during the following year at the school. The program staff selects, trains, and evaluates each group. The program provides a model for training professionals for inner-city schools and includes instruments, program descriptions, and consultation service.

Target Audience: Experienced teachers and students in elementary and secondary education.

Suggested Use: Thirty graduate hours, if structured as a degree program for experienced teachers; three years, if structured as an undergraduate program; one year beyond subject area courses, if structured as a preservice graduate program.

Materials and Equipment Needed: Wide variety of literature on inner city schools and group process training materials. Micro-teaching clinic equipment and portable videotape equipment useful, but not essential. Cooperative arrangements with inner city schools for observation and training purposes.

Instructional Requirements: Full-time director with experience in the schools and the university; cadre liaisons--half-time person for each training group during internship year; group process consultant--half-time person for each training group; and full-time evaluator.

Availability: 1973

Costs: Program costs, depending on structure and tuition, run from $2,000 to $10,000 per year per training group. Fixed staff costs run about $15,000 per year.

Developer: Henrietta Schwartz, Director, Ford Training and Placement Program, Graduate School of Education, University of Chicago, 5835 Kimbark, Chicago, Illinois 60637 (312) 753-3741

Distributor: Same as Developer

III. TRAINING MODELS AND TECHNIQUES

Diffusion

Training for Change Agents: A Guide to the Design of Training Programs in Education and Other Fields
Havelock, Ronald G.
Ann Arbor, Michigan
The University of Michigan
1971

This volume is largely based on the Conference on Educational Change Agent Training which included members from public schools, college and university education departments, educational research centers, and state and federal educational agencies. Its purpose is to provide trainers and training program developers with guidelines for effective use of training programs and of available resources. The conference members initially discussed various research findings and theory which they believed to form a sound basis for training models in the change process. Four specific goals of training and fifteen principles of good training design are developed and defined. Based upon these goals and principles, a comprehensive outline consisting of eight elements is developed and described to serve as an evaluative checklist for training programs. The conference members then divided into groups to use the criteria developed to formulate various types of training program models. The results are presented in outline form and cover the following areas: training school systems to develop a self-renewal capacity; producing structural and political changes in school systems; linking school systems with available resources; and improving the effectiveness of other educational agencies. Also presented is a fully developed, ideal model program for state educational agencies to train in change planning and management skills.

Performance Evaluation

Analyzing Performance Problems or 'You Really Oughta Wanna'
Mager, Robert F., Pipe, Peter
6 Davis Drive, Belmont, California 94002
Fearon Publishers/Lear Siegler, Inc., Education Division
1970

This volume presents a detailed procedure for identifying and analyzing the nature, importance, cause, and possible solutions of performance problems, i.e., when an individual's actual performance differs from the desired performance. Although the technique is applicable to everyday life, the volume is basically oriented towards educational and industrial environments, from which numerous examples are used. Utilizing a flow diagram and a list of appropriate questions, the first steps are to determine the nature and importance of the performance discrepancy and whether it is due to an actual skill deficiency. If a skill deficiency exists, one then determines: 1) whether the skill once existed; 2) whether

the lost or deteriorated skill is used frequently or infrequently; 3) whether there is a solution simpler than performance maintenance or formal training; and 5) whether the person has the potential to perform the skill. If a skill deficiency does not exist, one determines: 1) whether desired performance leads to unfavorable consequences; 2) whether non-performance or other performance leads to more favorable consequences; 3) whether there is a meaningful consequence for desired performance; and 4) whether there are obstacles to the desired performance. Proposed solutions are presented for all the above possible causes of performance problems. Finally, one must compare the size of the remedy with the size of the solution. In conclusion, a checklist of key issues and appropriate questions for analyzing performance problems is summarized.

Research and Development

Procedures for Conducting an Apprenticeship Work-Study Program
Millstein, Eugene J., Melnotte, Judith M., Dunn, James A.
Palo Alto, California
American Institutes for Research
1972

This manual describes procedures for conducting a cross-training and apprenticeship program for individuals interested in a career in educational research and development. It is intended as a guide for those interested in administering such a program and is based on the experiences of a pilot program conducted by the American Institutes for Research. The program description contains information on: length of the program; site; target population; instructional system; curriculum; recruitment procedures; selection criteria; stipend; and assistance with job placement. The following information on the instructional model is then provided: curriculum outline; how to identify individual objectives, prescribe learning activities, and monitor trainee progress; and how to select, assign, and monitor apprenticeship tasks. Publicity, application, and selection procedures, and program management considerations are then discussed. The importance of job placement activities if the program is used as an independent training program or as an adjunct to regular academic training is discussed. Appendixed are a list of proposed instructional objectives, a bibliography of instructional materials and resources, and a sample fact booklet for prospective applicants.

IV. TRAINING MATERIALS: COURSES, TEXTS, HANDBOOKS MANUALS, AND SIMULATIONS

Communication Skills

So You Have to Write a Technical Report: Elements of Technical Report Writing
Gray

This volume, written for anyone who has to write a technical report, is primarily concerned with those aspects and principles which are applicable to the preparation of all technical reports. The work's objectives are to provide basic guidance in identifying the audience for the report, organizing material and planning the document, and writing the full report. After defining a technical report, its principal function, characteristics, and various types of technical reports are detailed. Technical report writing techniques are identified and discussed and their advantages and limitations are pointed out. The initial steps of report writing discussed are analyzing the overall problem, assembling necessary data, preparing a working outline, and thinking about the report presentation. The parts of a report are described in the order in which they should be written; 1) introduction; 2) main body; 3) conclusions and recommendations; 4) appendixes, references, footnotes, and tables of contents; 5) abstract; and 6) title page. For each report part, its function, material to be included, location in the report, possible formats, style, and organization are discussed. The following characteristics of good technical report writing are then considered: completeness, conciseness, veracity, restraint, clarity, and general appearance. Finally, a summary of the volume is detailed in outline form.

Development of Programmed Instruction

Developing Programmed Instructional Materials, A Handbook for Program Writers
Espich, James E., Williams, Bill
2165 Park Boulevard, Palo Alto, California 94306
Fearon Publishers, Inc.
1967

This volume briefly discusses the theories behind programmed instruction, describes the preparatory steps required for programming, details the major programming techniques for writing various types of test frames, and suggests procedures for editing, testing, and test analysis. Although mainly an introductory text for program writers, it is also oriented towards individuals involved in evaluating programmed instructional materials. Theories of behavioral psychology are discussed as the basis for programming techniques. Three basic questions are then detailed which should be posed to determine the feasibility of wirting a program. The programmer then must: establish objectives; examine the scope, level and

results of material currently utilized; discuss the program with a subject expert; and diagram the material to be presented using flow charts or schematics. The following program construction techniques are discussed: discrimination frame sequence; constructed response frame sequence; branching frame sequence; retrospective chaining; BABOON frames; adjunct programming; and adjustive techniques such as branching programs, gate frames, remedial loops, and secondary tracts. Editing for programming techniques, technical accuracy and composition are discussed. One-to-one, small group, and field testing are discussed as experimental testing techniques. After testing, the minimum effort required to comprehensively revise a program is detailed.

* * * *

How To Write A Program, A Programmed Course Designed to Teach Techniques for Programming Instruction
Silverman, Robert E.
Box 156, Carlisle, Massachusetts
Carlisle Publishers, Inc.
1970

This programmed instruction text is an untheoretical introduction to how to write programmed materials. Designed for teachers or trainers with no knowledge of programmed instruction, the reader learns to apply principles derived from the psychology of learning and programming experience. The text's objectives are to teach the following: 1) to state objectives in terms of desired student responses; 2) to use prompts and proper sequence to obtain the desired responses; 3) to use positive, immediate feedback; 4) to require relevant and effective responses; 5) to use RULEG, EGRUL, discrimination, and response-familiarization sequences; 6) to write teaching, practice, review, and test frames; and 7) to use branching, a technique which provides individualization within a program. Instruction and practice are provided for each of these basic programming skills and techniques. In conclusion, an exercise is provided which is designed to utilize the reader's newly-learned skills by actually writing a programmed lesson. The text also includes a glossary of technical terms and a bibliography of suggested readings.

* * * *

Practical Programming
Pipe, Peter
Holt, Rinehart and Winston, Inc.
1966

This volume is designed to help start the beginner in writing a program; it covers practical issues such as preparatory steps, programming techniques, and testing and analysis methods. It is written for anyone who has decided that he is going to write a program. A brief introduction to programmed instruction defines four of its major characteristics. Also

discussed are the characteristics, advantages and disadvantages of the two major programming approaches, linear programming and branching programming. Six steps necessary for program writing preparation are detailed and discussed. In actually writing the program, its general format and such issues as introduction content, amount of practice necessary, and when to summarize are discussed. The written program should contain the following discussed components: 1) introduction; 2) review of essential concepts assumed as prerequisites; 3) step-by-step development of new concepts; 4) practice; and 5) final summary and criterion test. Numerous techniques and considerations in designing branching and linear programs are discussed using diagrams and examples. Finally, techniques for program testing, revision, and editing are briefly described.

Diffusion

A Guide to Innovation in Education
Havelock, Ronald G.
Ann Arbor, Michigan
The University of Michigan, Institute for Social Research
1970

This manual contains information about how change occurs and how educators who work for change (change agents) can organize their work to make successful innovation take place. The orientation is toward problem solving by and for the user through effective use of resources. Material included is based on an analysis of 1,000 studies of innovation and knowledge utilization in education and other fields. The process of change and innovation is divided into six stages: 1) building a relationship (between change agent and client); 2) diagnosing the problem; 3) acquiring relevant resources; 4) choosing the solution; 5) gaining acceptance; and 6) stabilizing the innovation and generating self-renewal. The first part of the Guide gives case studies of projects in school settings to illustrate the process. Part two, the main text of the manual illustrates the six stages of planned change with quotes from prominent authors and references to the case examples. Supplementary resource information is covered in the third part of the manual and includes sections: A. strategies and tactics: a glossary and guide to selection, which goes over common change strategies and tactics; B. major information sources in education which gives bibliographic and annotative services, directories and indices; consulting organizations; and government agencies; and C. a guide to the literature on planning of change in education with annotations and author and subject indices. The guide is arranged for easy reference.

Information/Data Collection

Doing a Literature Search in an Information Center
Garman, Marcia B. and Kathleen Mitchell
Educational Resources Center
590 Hamilton Street
Redwood City, California 94063

This course is intended to teach individuals who want to become educational information consultants different methods of doing a literature search in an information center. Through numerous practice exercises, activities,

readings, tapes, slides, and films, the reader is introduced to both traditional and nontraditional literature sources. The course's objectives are: 1) to identify various relevant glossary terms; 2) to transform a given search request into applicable descriptor terms; 3) to use manual techniques to select ten relevant documents, for a given search request, from ERIC publications and "fugitive" information catalogues; and 4) to use computer techniques to select ten relevant documents, for a given search request, from DIALOG, an on-line retrieval system for educational materials. Numerous self-tests are included, with their answer keys for the instructor. Equipment, materials, and facilities needed are listed.

Instructional Objectives

Preparing Instructional Objectives
Mager, Robert F., Ph.D.
6 Davis Drive, Belmont, California 94002
Fearon Publishers/Lear Siegler, Inc., Educational Division
1962

This volume utilized programmed instruction to explain how to specify and communicate instructional objectives in concrete, evaluative form. It is written for teachers and student teachers in all subjects and at all levels who are interested in preparing auto-instructional materials. The book's objectives are to teach the reader to recognize instructional objectives which are stated in terms of performance, to identify those portions which define acceptable performance, and to select from various test items those which appropriately evaluate the stated objectives. The importance and advantages of usefully stated objectives are discussed using numerous examples. The following qualities of meaningful objectives are described: identifying the desired behavior; specifying the conditions under which this behavior should occur; and specifying the criteria of minimally acceptable performance. A self-test is provided to determine the reader's ability to identify the characteristics discussed. Supplemental test is also included but not necessary to achieving the document's objectives. There is no discussion of the philosophy of programmed instruction, who should select objectives, or which objectives should be selected.

Measurement and Evaluation

Program Evaluators Handbook, Measurement
Farr, S. David, Subkoviak, Michael J.
Albany, New York 12224
The State Education Department
1969

This manual is the result of a review and training session for strengthening evaluative techniques. Conducted by the State of New York, the session was specifically concerned with Title III of the Elementary and Secondary Education Act of 1965, although the material is generalizable. The material is presented such that the original training session is replicable with time devoted to lecture, class discussion, and practice exercises. The manual has five units with expository text, an outline for use in lecture and/or class discussion, and exercises listed for each unit. The five unit topics are: 1) measurement-purposes, ideals, possibilities; 2) defining measurement domains, 3) person and item sampling; 4) test and item selection; and 5) objective observation. A Selected List of Standardized Tests details each test's name, publisher, grade levels covered, testing time, major subject areas measured, and where it is reviewed in the Mental Measurements Yearbook.

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A Programmed Introduction to Educational and Psychological Measurement
Levine, Samuel and Freeman Elzey
Brooks/Cole Publishing Company
Belmont, California
1970

Using a programmed instruction approach, this volume discusses the basic concepts of measurement as they relate to test development and interpretation. The work is designed to supplement texts in measurement and evaluation in the behavioral sciences and is written for individuals who have had an introductory course in statistics. The following topics are discussed: 1) the differences between qualitative and quantitative measurement and between discrete and continuous variables; 2) nominal, ordinal, interval, and ratio measurments; 3) adequately defining the phenomenon to be measured; 4) concurrent and predictive validity; 5) the Standard Error of Measurement; 6) test reliability and methods for determining the degree of stability in test scores over a short time period; 7) the use of equivalent tests to determine reliability; 8) the internal consistency of a test using such measurements as the coefficient of stability, the coefficient of equivalence, the coefficient of internal consistency, and the Spearman-Brown Prophecy Formula; 9) using a correlation matrix to determine which test items to delete or retain; 10) difficulty level and discriminating power for item analysis and the rationale and techniques for computing the Ease Index and the Discrimination Index; 11) ranks and percentiles; 12) test norms; and 13) use and interpretation of z scores, t scores, stanines, and deviation IQ's.

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What Are Students Learning?, Documenting Multiple Effects of Instruction on Learners, Booklet 1
Rosen, Marvin J.
Durham, North Carolina 27701
National Laboratory for Higher Education
January, 1972

This booklet describes a series of procedures for specifying concrete objectives and briefly discusses the measurement process. The following three types of information in a well-formed objective are described: 1) outcome formation, or the behavior desired; 2) level of achievement formation, or the specification of minimal acceptable performance; and 3) circumstances of evaluation formation, or conditions under which performance will be evaluated. The differences between general and specific objectives and refining the general objective into specific objectives are discussed. A form for refining general objectives so that they clearly and unambiguously define the skills, knowledges, and attitudes to be acquired is provided. The three major classes of learning, psychomotor, cognitive, and affective, are defined and exemplified. Methods are discussed for identifying and classifying these types of learning by level of difficulty or complexity. Finally, the necessity of specific procedures for verifying, testing, observing, or noting student achievement of specific objectives is briefly discussed.

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Which Students Achieved Which Objectives? Summary Statistics for Documenting Criterion-Referenced Instruction, Booklet 2
Rosen Marvin J.
Durham, North Carolina 27701
National Laboratory for Higher Education
January, 1972

This booklet details a procedure for obtaining evaluation statistics on criterion-referenced instruction, which is instruction designed to accomplish certain specific objectives. The procedure helps to describe clearly the skills mastered and missed by students. The reader should learn to perform the following tasks: 1) given one or more test items for an objective and a criterion of successful performance, calculate the percentage of students achieving the criterion; 2) given objectives with varying criteria for successful performance, calculate the percentage of students achieving the criterion for each objective; and 3) given criterion levels of successful performance for objectives and the percentage of students achieving these levels before and after instruction, display in tabular form any discrepancies and the effectiveness of the program relative to each objective. A form is provided for tabulating the achievement of learning criteria which is useful in pretests to determine: to exclude individuals from doing an instructional sequence for a particular objective if their scores indicate that they have achieved the criterion; and areas to be emphasized for those who fail to achieve the criterion. It is useful in posttests to determine: the students who achieve the criterion after, but not prior, to instruction; and if revision of the instructional sequence is necessary.

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Program Evaluation

Assessement and Evaluation Handbook, Title I
Finkelstein, Elsie L.
Albany, New York 12224
The State Education Department, Office of Research and Evaluation

This manual basically presents an overview of the evaluation process and extensively covers numerous evaluation planning charts and assessment devices for the evaluation of specific programs. It was developed by the New York State Education Department and is intended as a guide to assist local school personnel in assessing the effectiveness of programs and projects initiated under Title I of the Elementary and Secondary Education Act of 1965. Initially discussed are the purpose of evaluation, the planning and development of evaluation procedures, and six basic evaluation designs. Utilization of the State Pupil Evaluation Program and state agencies available for assisting project personnel are briefly described. Twenty-nine samples of evaluation planning charts are then included for use as guides or suggestions when planning evaluation procedures. Each chart has four headings for listing the general objective, specific objectives, pertinent behavioral criteria, and evaluation procedures. The

sample charts are on the following topics: educational communications; general education; handicapped children; health, physical education, and recreation; humanities and the arts; industrial arts education; occupational education; pupil personnel services; school supervision; and teacher education. Several of the sample charts include examples of various relevant evaluation devices such as questionnaires, checklists, etc. An annotated bibliography is included which lists numerous source materials pertaining to school program evaluation.

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Program Evaluators Handbook, Sampling Model
Meyer, Donald
Albany, New York 12224
The State Education Department
1969

A Bayesian model for determining a variable's confidence interval, given there were random and nonrandom sampling errors, is presented in this booklet. Initially, a standard formula is presented for determining a confidence interval when there is random sampling error. The following types of sampling errors are then discussed: frame error; selection error; nonresponse error; measurement error; and random sampling errors. Given an example problem with estimated error values for the above error parameters, a tree diagram is utilized to perform a population analysis and to show the proportion of the various error sources. The possible dependent relationship among the error parameters may be eliminated by the formulation of new parameters which are ratios of the original error parameters. A formula is given for this error ratio model which incorporates formulas for frame, selection, random sampling, non-response, and measurement errors. The ratio model is then used to perform a total error analysis for an example problem.

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Urban Education Program, Evaluation Manual
The University of the State of New York
Albany, New York 12224
The State Education Department
June, 1969

This manual is concerned with the evaluation of projects in the State of New York's Urban Education Program , which has two priority areas: 1) projects relating to the development and operation of community education centers; and 2) projects directly related to the regular elementary and secondary school programs. The manual is designed to aid school districts in developing and implementing effective evaluation programs for these projects. The following basic components of the evaluation plan are discussed: environmental conditions; objectives; project activities;

evaluation design; and decision processes. Model evaluation plans are exemplified in the following areas: school readiness; reading achievement; mathematics achievement; guidance services; retention of dropouts; and effects of cultural deprivation. Each plan states its general goal and specific objectives and each objective lists the target goal performance and evaluation procedures. The following information is provided on various types of evaluation instruments for target group performance: description; when they may be used advantageously; types of information they should supply; brief guidelines for their design; and good and poor examples. An outline which should be used in the development of project evaluation reports is detailed. Finally, appendixed are a list of standardized measurements for basic skills education, samples of evaluation instruments, and an annotated bibliography of selected references in evaluation.

Program Research and Development

Improving the Program, Revising Instructional Materials in Light of Tryout Data, Booklet 5
Rosen, Marvin J.
Durham, North Carolina 27701
National Laboratory for Higher Education
1971

This booklet describes a procedure for analyzing student responses to identify the types of deficiencies in an instructional program and to determine specific, remedial revisions. Student responses are to be obtained from criterion-referenced tests, practice exercises, and interviews. To locate the program deficiencies, a flow diagram for their analysis details all the stops which should be examined before determining a possible program revision. First, the defective element should be identified and determined whether it is sufficiently important to warrant a revision effort. If it is not very important, the criterion for acceptable performance might be lowered or the associated instructional materials could be eliminated from the program. If the material is important but the student is not performing the learning activities associated with it, it should be determined whether: 1) the students know what they are supposed to do; 2) they are trying; 3) they have the materials necessary; and 4) there are other obstacles to performance. If the student is performing the learning activities, but unsuccessfully, it should be determined if the criterion measures are valid and if the students are making errors when practicing. For each of the above possible problem areas, remedies for their solution are briefly discussed.

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Instructional Product Research
Baker, Robert L., Schutz, Richard E., ed.
11300 La Cienega Boulevard, Inglewood, California 90304
Southwest Regional Laboratory for Educational Research and Development
1972

The material in this book presents various research tools and techniques relevant to the research process and useful for developing instructional

products. It is intended for the user of research and for novice in educational research and development. Initially discussed are the classification of variables, the use of status, association and experimental studies, and interpreting the results of educational research studies. Identifying and selecting dependent and independent variables, and basic problems to avoid in their selection are discussed. A brief discussion of the research problem and guidelines, and sources for reviewing relevant literature are provided. In preparing a research proposal, the reader learns to outline the requirements and conditions of its basic components: the title, the research problem, procedures, and logistics. The interrupted time series design and the following control group designs are discussed as being very suitable for evaluative investigations in schools: nonequivalent, pretest-posttest, and posttest only. A strategy is provided for choosing appropriate statistical procedures for analyzing research data and the reader is familiarized with computer terminology and the use of library computer programs for statistical anlaysis. Formulating the requirements and conditions of the following research report components are discussed: title, research problem statement, method, results, discussion, conclusion, summary and abstract.

Research and Evaluation

An Evaluation Guidebook, A Set of Practical Guidelines for the Educational Evaluator
Popham, W. James
Box 24095, Los Angeles, California 90024
The Instructional Objectives Exchange
1972

This volume brings together and describes a collection of relevant, recently developed, technical procedures which may be used as a practical set of guidelines for the educational evaluator. After defining educational evaluation, its two main roles are described: identifying the instructional objectives and judging the quality of the instructional procedures designed to attain the objectives. The guidelines for instructional objectives concern: 1) the role of measurability; 2) unmeasurable objectives; 3) acceptable performance criteria; 4) content general vs. test item equivalent objectives; 5) minimal proficiency levels; 6) taxonomic analysis of objectives; and 7) utilizing existing collections of objectives. Guidelines for measurement examine: 1) criterion-referenced measures; 2) domain-referenced achievement testing; 3) multiple criterion measures; 4) unobstrusive measures; and 5) unanticipated outcomes. The guidelines for data collection and analysis concern: 1) clarifying value preferences; 2) comparing preference and performance data; 3) person and item sampling; 4) formative evaluation; 5) summative evaluation; 6) appropriate units for data analysis; 7) estimation vs. hypothesis testing; and 8) cost/effectiveness decision making. Each of the above guidelines suggest a practical course of action for the educational evaluator. Finally, an example is presented of an evaluator who utilizes the guidelines.

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Handbook in Research and Evaluation
Isaac, Stephen
Robert Knapp, Publisher
San Diego, California 92107
1971

This handbook is a collection of principles, stategies and methods which are useful in the planning, design, and evaluation of research in the behavioral sciences and education. Using almost a checklist approach, the handbook is designed to present an overview, a summary of alternatives, or a listing of strengths and weaknesses of various techniques for behavioral research. The volume is intended as a general reference tool for a research team, project director, proposal writer, evaluator, etc. Initially presented are several sets of checklists and guidelines which should prove useful in research planning. As research design depends upon the purpose and nature of the study, nine design alternatives are briefly described. Also, various possible problem areas which the research must consider such as validity, regression effects, etc. are detailed. Various techniques for establishing measurable criteria for research are discussed. Briefly summarized next are the more commonly used statistical techniques and guidelines are provided for their use. Finally presented are guidelines for planning, preparing, writing, and evaluating a research proposal, thesis, report, or article.

Statistics

A Programmed Introduction to Statistics, 2nd edition
Elzey, Freeman F.
Belmont, California 94002
Wadsworth Publishing Company
1971

This book is designed to introduce one to statistical techniques and their application through programmed sets of instruction. It is divided into twenty-five sets, each containing a) an introduction; b) the programmed instruction portion; and c) a series of exercises. The introduction of each set states the objectives of that chapter; the programs are divided into frames, each requiring an answer to a fill-in-the-blank statement; the exercises provide an opportunity to test what the sets have presented. Formulas, tables, and a glossary of statistical symbols are provided. Topics covered include: organization of data, measures of central tendency (mode, median, mean), comparison of measures of central tendency, percentiles, graphic representation of frequency distribution, measures of variability (range, semi-interquartile range, average deviation, variance, standard deviation), relationship between population and sample, introduction to the normal distribution, probability and the normal distribution, sampling error, estimation of population variance, estimation of the standard error of the mean, 95% confidence interval, 99% confidence interval, t distribution, null hypothesis, the standard error of the difference between means, t ratio for independent and non-independent means, one-and-two tailed tests, type I and type II errors, analysis of variance, F test for two variance estimates, scatter diagrams, introduction to correlation, Pearson product-moment correlation, regression, Spearman's rank order correlation, chi square (single sample and multiple samples).

V. SUPPLEMENTARY MATERIALS:

REFERENCES, RESOURCES, AND CASE STUDIES

Curriculum Research and Development

Recommendations for Curriculum and Instructional Materials
Tyler, Louise L., Klein, M. Frances, Michael, William B.
2265 Prosser Avenue
Los Angeles, California
1971

Twenty-eight recommendations for identifying significant aspects of instructional materials are proposed as possible criteria for determining the materials' quality and for providing a basis for making judgments regarding them. These recommendations are intended for producers of curricula and instructional materials, for users in their selection, and for funding agencies in their evaluation. The recommendations concern the following aspects of materials: rationale, appropriateness, specifications, effectiveness, conditions, practicality, and dissemination. After stating the recommendation, it is designated as essential, very desirable, or desirable. Each recommendation is then discussed in relation to several of the following terms: rationality, values, decisions, accountability, significance, comprehensiveness, causation, behavioralism, and knowledge. The recommendations are then analyzed and evaluated within the framework of a specific teaching model, first proposed by Glaser, which consists of four major components: objectives; entering behavior; instructional procedures; and the evaluation of outcomes. The evaluation of materials and the components of the evaluation process are discussed in regard to determining whether the recommendations have been utilized. Finally, a transcript of a meeting with the authors and a group of teachers concerned with selection of materials is included.

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Research for Curriculum Improvement
Association for Supervision and Curriculum Development
NEA

This volume, which is the 1957 yearbook of the Association for Supervision and Curriculum Development of the NEA, provides a history of curriculum research, describes the research process, discusses the researcher himself, and details various aspects of cooperative curriculum research in the school setting. The work is intended to fulfill the needs of all educators considering, or actually doing, research in instructional improvement. Initially provided are a discussion of the theoretical principles which must be considered by curriculum researchers and a history of curriculum research. Section II covers the phases of the research process: 1) problem identification; 2) determining working hypotheses; 3) selecting and handling data; and 4) obtaining meaningful results from the data.

Section III asks the reader to consider himself as not only a consumer, but also a producer, of research; and discusses the necessity of good human relations when conducting research. The final section discusses the following aspects of conducting curriculum research in the school: organization and management of the research process; inhibitors in conducting research; and ethical considerations when using students in educational experiments. Appendixed are an annotated bibliography on curriculum research and a report on the first Cooperative Curriculum Research Institute.

Information/Data Collection

A Guide to Educational Resources
Far West Laboratory for Educational Research and Development

Intended primarily for the educational information consultant, this brief annotated bibliography is designed to selectively cover standard sources of information for preliminary literature searches and those literature tools and services available for current awareness of activities, products, sources and innovations. The full bibliographical citation and the work's price are detailed, when appropriate, for each item covered. The work describes reference tools available for: general fact finding; social science sources; guides to educational literature and research; basic reference in education; statistics; directories; guides to current literature, Office of Education projects, funds, and selection of periodicals; and guides for products and audiovisual materials. Information is provided on the Educational Resources Information Center (ERIC), its twenty clearinghouses, their mailing address, and areas of specification. Also listed are the mailing addresses of regional laboratories, university-sponsored research and development centers, and several related agencies which are funded by the U.S. Office of Education. Several nonconventional information services for current awareness and retrospective literature searches are also annotated.

Planning and Management

Administrator's Manual for State Plan Programs, Title III,
Elementary and Secondary Education Act.
U. S. Department of Health, Education, and Welfare
Office of Education
Projects to Advance Creativity in Education
1971

This manual attempts to provide a base of common understanding among State educational agencies on the legislative changes occurring in the Title III Program since 1969. Changes in Title III are listed and explained. The main text of the manual centers on the details of state plan administration. Detailed information is provided on eligibility for Federal funds, State organization and functions (State advisory council and State agency), and the State plan program. Discussion on the State plan program covers the details of the State educational agency as facilitator of educational change, assessment of educational needs, project development and proposal review, evaluation of projects, dissemination and change strategies, guidance, counseling and testing, other

program considerations such as handicapped, hearings, private school participation, authority and responsibility, and finance management. Other chapters of the manual discuss the purpose of Title III, details of local program development and operation, funding and fiscal considerations, and reporting requirements for State educational agencies. An annual report is presented covering areas and scope of activities to report, dissemination activities, instructions for completing the annual report and financial information to include. Several appendices contain formats for preparing plans, certification forms, copyright guidelines, grant terms and conditions, a bibliography, and UCLA's Center for the Study of Evaluation hierarchical objectives charts.

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Basic Program Plan, Accountable Learning Systems
Durham, North Carolina 27701
National Laboratory for Higher Education
April 1, 1972

The basic components and evaluation strategies of the Accountable Learning Systems (ALS) program, which is designed to increase instructional effectiveness and relevance in two year colleges, are described in this volume. The overall objective of the program is to develop tested products for training faculty and administrators in clarifying college goals and objectives so that individualized courses of instruction may be systematically developed. The program description discusses: 1) significance of the problem to the target audience; 2) expected outcomes; 3) assumptions; 4) overall strategy; and 5) program implementation. Numerous product descriptions and schedules are described for the following program components: 1) training for instructional accountability; 2) management support for instructional accountability; 3) curriculum development for instructional accountability; and 4) technical assistance and service. Extensive evaluation charts, which use a criterion-referenced approach, are included for determining the efficiency and effectiveness of the ALS program. These illustrate several evaluation strategies and modes of data collection and reflect the current status of evaluation plans and results. The charts contain the following information, when available: 1) identification of the program aspect or product being evaluated; 2) questions the evaluation is designed to answer; 3) performance criteria; 4) the design, data collection, and analysis methods utilized; and 5) test results or the schedule dates for testing.

Program Evaluation

Categorically Aided Programs Evaluation, Continual Evaluation of Proposals and Projects
The University of the State of New York
Albany, New York 12224
The State Education Department

The evaluation of the State of New York's categorically aided programs at several time points, from proposal submission to product evaluation, is briefly described in this booklet. Utilizing the CIPP model, which

was first developed by Stufflebeam, the objectives for the following evaluation components are listed: context, input, process, and product. The proposal elements which are examined for evaluation purposes are listed and the qualities and characteristics of worthwhile proposals are enumerated. Techniques for monitoring an on-going project are detailed and the characteristics of a worthwhile on-going project are listed. The two major techniques for final program evaluation are cited and the qualities of an exemplary project which merits dessimination are detailed.

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Closing the Gap, a Report of the First Two Years of Experience with ESEA, Title 1 in New York State
The University of the State of New York
Albany, New York 12224
The State Education Department
August, 1968

The major program results of the State of New York's first two years experience with the Elementary and Education Act, Title I funding are summarized in this booklet. This funding was provided in 1965-67 for special educational programs designed to broaden and strengthen education for deprived students. Tabular results for the two year program for children participating in the following programs and their level of improvement are provided: reading programs; pupil personnel services; English language arts; and mathematics programs. Selected results for the first year are provided on the following programs: grade 4 gains in word knowledge and discrimination, reading, and arithmetic concepts; and remedial reading for low achievers in high school. Program statistics and selected results for the second funded year are provided on: 1) attitude changes in grades 1-8; 2) types of programs funded; 3) methods used for achieving program goals; 4) type of measuring devices used; 5) reading programs by grade level; 6) types of evaluation used; and 7) effectiveness of reading programs. Four specific programs are described: 1) a corrective reading program with a cultural enrichment program; 2) preparing high school students for college; 3) a pupil transfer program; and 4) a comprehensive reading program for grades 1-12. Conclusions and implications derived from the program are then summarized.

Research and Evaluation

Experimental Assessment of an Incentive Program to Enhance School Learning: A Pilot Study, Final Report to Franklin-McKinley School District
Jung, Steven, M., Lipe, Dewey, Canter, Shelly
P. O. Box 1113, Palo Alto, California 94302
American Institutes for Research
July 15, 1971

A pilot study to ascertain the effects of utilizing six educational incentive models for rewarding teachers, students, and parents in producing

student learning gains is reported. The purposes of the pilot study were to: determine if a successful experimental field study of incentives could be implemented; develop and refine the methodology necessary for a large-scale field study; and ascertain preliminary estimates of incentive effects for assessing the potentiality of further research on the topic. The study specifically examined the effects of incentives in acquiring mathematics and reading skills for children, grades 1-3, over a 4-5 week period. Three experimental schools, two active control schools, and one passive control school were involved in the project. The instructional material was individualized for each student and incentives were provided if the class as a whole achieved a required standard of mastery. The various incentive models, types of incentives, and their effects on student performance and student, parent, and teacher attitudes are discussed. Two techniques for monitoring the instructional process are described. Tabular data results are presented on administered pre-, and post-, standardized tests, and on criterion-referenced tests. Appendixed are a comprehensive list of objectives for primary reading and mathematics and various letters, questionnaires, procedures, etc. used for the pilot study.

Statistics

How to Lie With Statistics
Huff, Darrell
W. W. Norton & Company, New York
1954

This basically non-mathematical book introduces the layman to common statistical measurements and techniques by repeatedly exemplifying their use to mislead, confuse, inflate, sensationalize, and oversimplify. A distinction is made between mode, median and arithmetic means; the term "average" is dismissed as meaningless when used without qualification. Stratified, random and representative samples are distinguished and the selection of biased samples is explored. Consideration is given to misleading statistics about distributions when it is not specified whether the distribution is normal or skewed. Ranges, degree of significance, degree of precision, probable error and standard error are defined; then certain data are shown to be of little value without the presence of one or more of these measurements. Various deceptions in line, bar, and pictorial graphs such as distortion of measurement, divisions, showing only part of the total graph, and changing the coordinates of the ordinate and abscissa are exemplified. Studies are reported of biases which result from improper questionnaire and interview survey techniques. The use of deceptive words, linear regression or cyclical variations, and cause-effect are also demonstrated. In conclusion, five simple questions are formulated which should be posed and answered to avoid being misled by statistics.